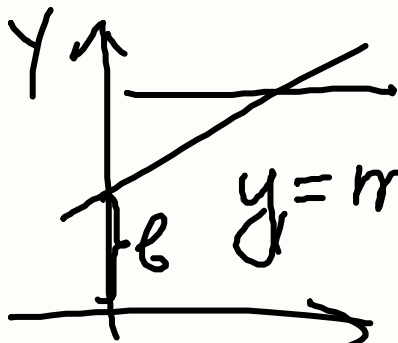


ch.3.1 p. 156



$$y = mx + b$$

LINEAR EQUATION

IN A SLOPE (m) -

- INTERCEPT FORM

$$y_2 = m_2x + b_2$$

SYSTEM OF LINEAR EQUATIONS

$$\begin{cases} y = m_1x + b_1 \\ y_2 = m_2x + b_2 \end{cases}$$

$$\text{Ex. 1 } \begin{cases} x - y = 2 \\ x + 2y = -6 \end{cases}$$

$$\begin{array}{r} x - y = 2 \\ -x \quad -x \\ \hline -y = -x + 2 \\ y = x - 2 \end{array}$$

$$\begin{array}{r} y = mx + b \\ x + 2y = -6 \\ -x \quad -x \\ \hline 2y = -x - 6 \\ \div 2 \quad \div 2 \quad \div 2 \\ y = \left(-\frac{1}{2}\right)x - 3 \end{array}$$

SOLVING BY SUBSTITUTION

$$y_1 = x - 2 \quad y_2 = -\frac{1}{2}x - 3$$

$$y_1 = y_2 \quad x - 2 = -\frac{1}{2}x - 3$$

$$\begin{array}{rcl} x - 2 & = & -0.5x - 3 \\ +0.5x & +0.5x & \end{array}$$

$$\begin{array}{rcl} 1.5x - 2 & = & -3 \\ +2 & +2 & \end{array}$$

$$\begin{array}{rcl} 1.5x & = & -1 \\ \div 1.5 & \div 1.5 & \\ x & = & -\frac{2}{3} \end{array}$$
$$y = -\frac{2}{3} - 2 = -2\frac{2}{3}$$

$$\underline{\text{Ex. 2}} \begin{cases} 9x - 3y = 3 \\ 21x + 4 = 7y \end{cases}$$

$$9x - 3y = 3$$

$$3x - y = 1$$

$$\begin{array}{r} -3x \quad -3x \end{array}$$

$$-y = -3x + 1$$

$$\cdot -1$$

$$y = 3x - 1$$

$$\overline{m_1 = 3} \quad b_1 = -1$$

$$y = mx + b$$

$$\begin{array}{r} 21x + 4 = 7y \\ \div 7 \quad \div 7 \quad \div 7 \end{array}$$

$$3x + \frac{4}{7} = y$$

$$y_2 = 3x + \frac{4}{7}$$

$$m_2 = 3 \quad b_2 = \frac{4}{7}$$

$$m_1 = m_2 \quad b_1 \neq b_2$$

NO SOLUTION

#6 p. 160
$$\begin{cases} 3x + 4y = 12 \\ 4y - 12 = -3x \end{cases}$$

$$y_1 = 3 - \frac{3}{4}x$$

$$y_2 = 3 - \frac{3}{4}x$$

$$m_1 = m_2 = -\frac{3}{4}$$

$$b_1 = b_2 = 3$$

INFINITE
NUMBER
OF SOLUTIONS

SUMMARY

REWRITE EQUATIONS
IN THE SLOPE-INTERCEPT
FORM $y_1 = m_1x + b_1$,

$$y_2 = m_2x + b_2$$

ENTER INTO YOUR CALCULATOR

GRAPH **ZOOM** **3** **ENTER** IF YOU DO
NOT SEE INTERS.
2nd **TRACE** **ENTER** **ENTER** **ENTER**

PRACTICE p.161 #13-17 odd

HOME: p.161 #14-24 even.